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## SEQUENCE LISTING

<110> Mitchell, Lloyd G.  
Garcia-Blanco, Mariano A.  
Puttaraju, Madaiah  
Mansfield, Gary S.

<120> METHODS AND COMPOSITIONS FOR USE IN  
SPLICEOSOME MEDIATED RNA TRANS-SPLICING

<130> A31304-B-A-B 072874.0135

<140> 09/756,096

<141> 2001-01-08

<150> 09/158,863

<151> 1998-09-23

<150> 09/133,717

<151> 1998-08-13

<150> 09/087,233

<151> 1998-05-28

<150> 08/766,354

<151> 1996-12-13

<150> 60/008,317

<151> 1995-12-15

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60

aatcttttg tgatggaaaa cttttcttcg taccacggga ctaaactgg ttatgtagat  
120

tccattcaaa aa

SUB  
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132

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ggcgctgcag ggcgctgatg atgttggtg  
29

<210> 3  
<211> 36  
<212> DNA  
<213> Corynebacterium diphtheriae

<400> 3  
ggcgaagctt ggatccgaca cgatttcctg cacagg  
36

<210> 4  
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<220>  
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aattctctag atgcttcacc cgggcctgac tcgagtacta actggtacct cttctttttt  
60  
ttcctgca  
68

<210> 5  
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<400> 5  
ggaaaaaaaa gaagaggtac cagttagtag tcgagtcagg cccgggtgaa gcatctagag  
60

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<400> 6  
tcgagcaacg ttataataat gttc  
24

<210> 7  
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<220>  
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<400> 7  
tcgagaacat tattataacg ttgc  
24

<210> 8  
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<220>  
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<400> 8  
aattctctag atcaggcccg ggtgaagcac tcgag  
35

<210> 9  
<211> 25  
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<213> Artificial Sequence

<220>  
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<400> 9  
tgcttcaccc gggcctgata tagag  
25

<210> 10

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<400> 10  
tgcttcaccc ggcctga  
18

<210> 11  
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<400> 11  
ctcttctttt ttttcc  
16

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<212> DNA  
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<400> 12  
caacgttata ataatgtt  
18

<210> 13  
<211> 16  
<212> DNA  
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<400> 13  
ctgtgattaa tagcgg  
16

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<212> DNA  
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<400> 14  
cctggacgcg gaagtt  
16

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<212> DNA  
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51

<210> 16  
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<212> DNA  
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<400> 16  
cttctgtttt ttttctc  
17

<210> 17  
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<400> 17  
cttctgtatt attctc  
16

<210> 18  
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<212> DNA  
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<400> 18  
gttctgtcct tgtctc  
16

<210> 19  
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<213> Corynebacterium diphtheriae

<400> 19  
ggcgctgcag ggcgctgatg atgttggtg  
29

<210> 20  
<211> 36  
<212> DNA  
<213> Corynebacterium diphtheriae

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ggcgaagctt ggatccgaca cgatttcctg cacagg

36

<210> 21  
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<213> Corynebacterium diphtheriae

<400> 21  
catcgtcata atttccttgt g  
21

<210> 22  
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<212> DNA  
<213> Corynebacterium diphtheriae

<400> 22  
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20

<210> 23  
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<212> DNA  
<213> Corynebacterium diphtheriae

<400> 23  
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20

<210> 24  
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<212> DNA  
<213> Homo sapien

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cggcaccgtg gccgaagtgg  
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accggaattc atgaagccag gtacaccagg  
30

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<400> 26  
gggcaaggtg aacgtggatg  
20

<210> 27  
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<400> 27  
atcaggagtg gacagatcc  
19

<210> 28  
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<220>  
<223> Oligonucleotide primer complimentary to the  
Escherichia coli lacZ gene

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gcatgaattc ggtacatgg gggggttctc atcatcatc  
39

<210> 29  
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<212> DNA  
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<220>  
<223> Oligonucleotide primer complimentary to the  
Escherichia coli lacZ gene

<400> 29  
ctgaggatcc tcttacctgt aaacgcccac actgac  
36

<210> 30  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the  
Escherichia coli lacZ gene

<400> 30

gcatggtaac cctgcagggc ggcttcgtct gggactgg

38

<210> 31

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the  
Escherichia coli lacZ gene

<400> 31

ctgaaagctt gttaacttat tatttttgac accagacc

38

<210> 32

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the  
Escherichia coli lacZ gene

<400> 32

gcatggtaac cctgcagggc ggcttcgtct aataatggga ctgggtg

47

<210> 33

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the beta  
HCG6 gene (accession #X00266)

<400> 33

gcatggatcc tccggagggc ccctgggcac cttccac

37

<210> 34



<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide primer complimentary to the beta  
HCG6 gene (accession #X00266)

<400> 34  
ctgactgcag ggtaaccgga caaggacact gcttcacc  
38

<210> 35  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide primer complimentary to the beta  
HCG6 gene (accession #X00266)

<400> 35  
gcatggtaac cctgcagggg ctgctgctgt tgctg  
35

<210> 36  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide primer complimentary to the beta  
HCG6 gene (accession #X00266)

<400> 36  
ctgaaagctt gttaaccagc tcaccatggt ggggcag  
37

<210> 37  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide primer complimentary to the  
Escherichia coli lacZ gene

<400> 37

ggcttttcgct acctggagag ac  
22

<210> 38

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the  
Escherichia coli lacZ gene

<400> 38

gctggatgcg gcgtgcggtc g  
21

<210> 39

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the  
Escherichia coli lacZ gene

<400> 39

cggcaccgtg gccgaagtgg  
20

<210> 40

<211> 45

<212> DNA

<213> Homo sapien

<400> 40

acctggggcc acccattatt aggtcattat ccgcggaaca ttata  
45

<210> 41

<211> 35

<212> DNA

<213> Homo sapiens

<400> 41

acctctgcag gtgaccctgc aggaaaaaaaa agaag  
35

<210> 42

<211> 30  
<212> DNA  
<213> Homo sapiens

<400> 42  
acctctgcag acttcacttc taatgatgat  
30

<210> 43  
<211> 51  
<212> DNA  
<213> Homo sapien

<400> 43  
acctgcggcc gcctaataatgat gatgatgatg atgctcttct agttggcatg c  
51

<210> 44  
<211> 32  
<212> DNA  
<213> Homo sapien

<400> 44  
gacctctcga gggatttggg gaattatttg ag  
32

<210> 45  
<211> 35  
<212> DNA  
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<400> 45  
ctgacctgcg gccgctacag tggttgaatgt ggtgc  
35

<210> 46  
<211> 35  
<212> DNA  
<213> Homo sapien

<400> 46  
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35

<210> 47  
<211> 32  
<212> DNA  
<213> Homo sapien

<400> 47  
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32

<210> 48  
<211> 21  
<212> DNA  
<213> Homo sapien

<400> 48  
ctaatgatga tgatgatgat g  
21

<210> 49  
<211> 21  
<212> DNA  
<213> Homo sapien

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cgcctaata ga tgatgatgat g  
21

<210> 50  
<211> 21  
<212> DNA  
<213> Homo sapien

<400> 50  
cttcttggtga ctctgtcct g  
21

<210> 51  
<211> 32  
<212> DNA  
<213> Homo sapien

<400> 51  
gacctctcga gggatttggg gaattatttg ag  
32

<210> 52  
<211> 21  
<212> DNA  
<213> Homo sapien

<400> 52  
aactagaagg cacagtcgag g

21

<210> 53  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> trans-spliced product containing Human chorionic gonadotropin gene 6 sequences and Corynebacterium diphtheriae diphtheria toxin A sequence

<400> 53  
gagatgttcc agggcgtgat gatg  
24

<210> 54  
<211> 127  
<212> RNA  
<213> Artificial Sequence

<220>  
<223> PTM intramolecular base paired stem

<221> misc\_feature  
<222> (57)...(70)  
<223> Loop comprising a combination of 14 nucleotides according to specification

<400> 54  
gcuagccugg gacaaggaca cugcuucacc cgguuaguag accacagccc ugagccnnnn  
60  
nnnnnnnnnn aucguuaacu aaauaacuac uaacuggggug aacuucuguu uuuuucucga  
120  
gcugcag  
127

<210> 55  
<211> 127  
<212> RNA  
<213> Artificial Sequence

<220>  
<223> PTM intramolecular base paired stem

<221> misc\_feature  
<222> (57)...(70)  
<223> Loop comprising a combination of 14 nucleotides

according to specification

<400> 55

gcuagccugg gacaaggaca cugcuucacc cgguuaguag accacagccc ugagccnnnn  
60  
nnnnnnnnnn aucguuaacu aaauaacuac uaacuggggug aacuucugua uuauucucga  
120  
gcugcag  
127

<210> 56

<211> 127

<212> RNA

<213> Artificial Sequence

<220>

<223> PTM intramolecular base paired stem

<221> misc\_feature

<222> (57)...(70)

<223> Loop comprising a combination of 14 nucleotides  
according to specification

<400> 56

gcuagccugg gacaaggaca cugcuucacc cgguuaguag accacagccc ugagccnnnn  
60  
nnnnnnnnnn aucguuaacu aaauaacuac uaacuggggug aaguucuguc cuugucucga  
120  
gcugcag  
127

<210> 57

<211> 132

<212> DNA

<213> Artificial Sequence

<220>

<223> trans-spliced product containing Human chorionic  
gonadotropin gene 6 sequences and Corynebacterium  
diphtheriae diphtheria toxin A sequences

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caggggacgc accaaggatg gagatgttcc agggcgctga tgatgttggtt gattcttctt  
60  
aatcttttg tgatggaaaa cttttcttcg taccacggga ctaaacctgg ttatgtagat  
120  
tccattcaaa aa  
132

<210> 58  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Artificial Sequence derived from Escherichia coli  
lacZ gene

<400> 58  
gaattcggta ccatgggg  
18

<210> 59  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Artificial Sequence derived from Escherichia coli  
lacZ gene

<400> 59  
cgtttacagg taagaggatc ctccggaggg ccc  
33

<210> 60  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Artificial Sequence derived from Escherichia coli  
lacZ gene

<400> 60  
tgggtgtcaaa aataataagt taacaagctt  
30

<210> 61  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> trans-spliced product containing Escherichia coli  
lacZ gene sequences and Human chorionic

## gonadotropin gene 6 exon 2 sequences

&lt;400&gt; 61

cagcagcccc tgtaaacggg gatac  
25

&lt;210&gt; 62

&lt;211&gt; 286

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> trans-spliced product containing Escherichia coli  
lacZ gene sequences

&lt;400&gt; 62

ggctttcgct acctggagag acgcgcccgc tgatcctttg cgaatacgcc cacgcgatgg  
60  
gtaacagtct tggcgggtttc gctaaatact ggcaggcggt tcgtcagtat ccccgtttac  
120  
agggcggctt cgtctaataa tgggactggg tggatcagtc gctgattaaa tatgatgaaa  
180  
acgggcaacc cgtggtcggc ttacggcggg gatcttggcg atacgccgaa cgatcgccag  
240  
ttctgtatga acggtctggg ctttgccgac cgcacgccgc atccag  
286

&lt;210&gt; 63

&lt;211&gt; 196

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> trans-spliced product containing Escherichia coli  
lacZ gene sequences

&lt;400&gt; 63

ggctttcgct acctggagag acgcgcccgc tgatcctttg cgaatacgcc cacgcgatgg  
60  
gtaacagtct tggcgggtttc gctaaatact ggcaggcggt tcgtcagtat ccccgtttac  
120  
aggggctgct gctgttgctg ctgctgagca tgggcgggac atgggcatcc aaggagccac  
180  
ttcggccacg gtgccg  
196

&lt;210&gt; 64

&lt;211&gt; 420



<212> DNA  
<213> Artificial Sequence

<220>

<223> trans-spliced product comprising cystic fibrosis  
transmembrane regulator-derived sequences and His  
tag sequence

<400> 64

gctagcgttt aaacgggccc acccatcatt attaggtcat tatccgcgga acattattat  
60  
aacgttgctc gagtactaac tggaacctct tctttttttt cctgcagact tcacttctaa  
120  
tgatgattat gggagaactg gagccttcag agggtaaaat taagcacagt ggaagaattt  
180  
cattctgttc tcagttttcc tggattatgc ctggcaccat taaagaaaat atcatctttg  
240  
gcggccgcca ctgtgctgga tatctgcaga attccaccac actggactag tggatccgag  
300  
ctcggtagca aggttaagtt taaaccgctg atcagcctcg actgtgcctt ctagttgcca  
360  
gccatctgtt gtttgcccct ccccggtgcc ttccttgacc ctggaaggtg ccactcccac  
420

<210> 65

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Splice junction sequence

<400> 65

atgttccagg gcgtgatgat  
20

<210> 66

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> C terminal residues from glutathione -S-  
transferase

<400> 66

Asp Tyr Lys Asp Asp Asp Lys

1

5

&lt;210&gt; 67

&lt;211&gt; 15

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Artificial sequence comprising sequences derived  
from Escherichia coli lacZ gene

&lt;400&gt; 67

ggagttgatc ccgtc

15

&lt;210&gt; 68

&lt;211&gt; 37

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Artificial sequence comprising sequences derived  
from Escherichia coli lacZ gene

&lt;400&gt; 68

gcagtgtcct tgtgcggtta ccctgcaggg cggcttc

37

&lt;210&gt; 69

&lt;211&gt; 120

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Binding domain of PTM

&lt;400&gt; 69

gattcacttg ctccaattat catcctaagc agaagtgtat attcttattt gtaaagattc  
60tattaactca tttgattcaa aatattttaa atacttcctg tttcatactc tgctatgcac  
120

&lt;210&gt; 70

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

<220>

<223> Spacer sequence of PTM

<400> 70

aacattatta taacgttgct cgaa

24

<210> 71

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Branch point, pyrimidine tract and acceptor splice  
site of PTM

<400> 71

tactaactgg tacctcttct tttttttttg atatcctgca gggcggc

47

<210> 72

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> Donor site and spacer sequence of PTM

<400> 72

tgaacggtaa gtgttatcac cgatatgtgt ctaacctgat tcgggccttc gatacgctaa

60

gatccaccgg

70

<210> 73

<211> 260

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of spacer sequence

<400> 73

tcaaaaagtt ttcacataat ttcttacctc ttcttgaatt catgctttga tgacgcttct

60

gtatctatat tcatcattgg aaacaccaat gatttttctt taatggtgcc tggcataatc

120

ctggaaaact gataacacaa tgaaattctt ccactgtgct taaaaaaacc ctcttgaatt  
180  
ctccatttct cccataatca tcattacaac tgaactctgg aaataaaaacc catcattatt  
240  
aactcattat caaatcacgc  
260

<210> 74  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide primer

<400> 74  
cgctggaaaa acgagcttgt tg  
22

<210> 75  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide

<400> 75  
actcagtgtg attccacctt ctc  
23

<210> 76  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide

<400> 76  
gacctctgca gacttcactt ctaatgatga ttatgg  
36

<210> 77  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 77

ctaggatccc gttctttttgt tcttcactat taa  
33

<210> 78

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 78

ctagggttac cgaagtaaaa ccatacttat tag  
33

<210> 79

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 79

gcatgggttac cctgcagggg ctgctgctgt tgctg  
35

<210> 80

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 80

ctgaaagctt gttaaccagc tcaccatggt ggggcag  
37

<210> 81

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of PTM molecule

<400> 81

acccatcatt attaggtcat tat  
23

<210> 82

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 82

gatcaaattct gtcgatacctt cc  
22

<210> 83

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 83

ctgatccacc cagtcccatt a  
21

<210> 84

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 84

gactgatcca cccagtcca ga  
22

<210> 85

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Random sequence inserted to replace 3' splice site

<221> misc\_feature

<222> (7)...(30)

<223> spacer sequence, see SEQ ID NO 70

<400> 85

ccgcggnnnn nnnnnnnnnn nnnnnnnnnn gggttccggt accggcggct tc  
52

<210> 86

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 86

ttttatcccc gtttacaggg cggcttcgctc tgggactggg tggatcagtc gctgattaaa  
60  
tatgatgaaa a  
71

<210> 87

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 87

tttggcgata cgccgaacga tcgccagttc tgtatgaacg gtctgggtctt tgccgaccgc  
60  
acgccg  
66

<210> 88

<211> 192

<212> DNA

<213> Artificial Sequence

<220>

<223> PTM sequences

<400> 88

acgagcttgc tcatgatgat catgggagag ttagaaccaa gtgaaggcaa gatcaaaca  
60  
tccggccgca tcagcttttg cagccaattc agttggatca tgcccgggtac catcaaggag  
120  
aacataatct tcggcgtcag ttacgacgag taccgctatc gctcgggtgat taaggcctgt  
180  
cagttggagg ag  
192

<210> 89  
<211> 25  
<212> DNA  
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<220>  
<223> Oligonucleotide

<400> 89  
gagcaggcaa gacgagcttg ctcac  
25

<210> 90  
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<212> DNA  
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<220>  
<223> Oligonucleotide

<400> 90  
gagaacataa tcttcggcgt cagttacg  
28

<210> 91  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide

<400> 91  
gtcagttgga ggaggacatc tccaagtttg  
30

<210> 92  
<211> 192  
<212> DNA



<213> Artificial Sequence

<400> 92

acgagcttgc tcatgatgat catgggcgag ttagaaccaa gtgaaggcaa gatcaaaca  
60  
tccggccgca tcagcttttg cagccaattc agttggatca tgcccgggtac catcaaggag  
120  
aacataatct tcggcgtcag ttacgacgag taccgctatc gctcgggtgat taaggcctgt  
180  
cagttggagg ag  
192

<210> 93

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> PTM sequences

<400> 93

aaatatcatt ggtgtttctt atgatga  
27

<210> 94

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 94

ccaactagaa gaggacatct ccaagtttgc  
30

<210> 95

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 95

atgatcatgg gcgagttaga accaagtgag  
30

<210> 96  
<211> 27  
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<213> Artificial Sequence

<220>  
<223> Oligonucleotide

<400> 96  
aaaatatcat ctttggtggt tcctatg  
27

<210> 97  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide

<400> 97  
ccaactagaa gaggacatct ccaagtt  
27

<210> 98  
<211> 21  
<212> DNA  
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<220>  
<223> 5' splice site

<400> 98  
cgtttacagg taagtggatc c  
21

<210> 99  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> 3' splice site

<400> 99  
ctgcagggcg gcttcgtcta ataatgg  
27

<210> 100  
<211> 47  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Sequence from trans-splicing domain

<400> 100  
tactaactgg tacctcttct tttttttttg atatcctgca gggcggc  
47

<210> 101  
<211> 1584  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> CFTR PTM

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120  
ccttctgttg attctgctga caatctatct gaaaaattgg aaagagaatg ggatagagag  
180  
ctggcttcaa agaaaaatcc taaactcatt aatgcccttc ggcgatgttt tttctggaga  
240  
tttatgttct atggaatctt tttatattta ggggaagtca ccaaagcagt acagcctctc  
300  
ttactgggaa gaatcatagc ttcctatgac ccggataaca aggaggaacg ctctatcgcg  
360  
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420  
gccatttttg gccttcatca cattggaatg cagatgagaa tagctatgtt tagtttgatt  
480  
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540  
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600  
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660  
gcgtctgcct tctgtggact tggtttcctg atagtccttg ccctttttca ggctgggcta  
720  
gggagaatga tgatgaagta cagagatcag agagctggga agatcagtga aagacttgatg  
780  
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840

atggaaaaaa tgattgaaaa cttaagacaa acagaactga aactgactcg gaaggcagcc  
900

tatgtgagat acttcaatag ctacagccttc ttcttctcag gggtctttgt ggtgttttta  
960

tctgtgcttc cctatgcact aatcaaagga atcatcctcc ggaaaatatt caccaccatc  
1020

tcattctgca ttgttctgcg catggcggtc actcggcaat ttccctgggc tgtacaaaca  
1080

tggtatgact ctcttggagc aataaacaaa atacaggatt tcttacaaaa gcaagaatat  
1140

aagacattgg aatataactt aacgactaca gaagtagtga tggagaatgt aacagccttc  
1200

tgggaggagg gatttgggga attatttgag aaagcaaac aaaacaataa caatagaaaa  
1260

acttctaattg gtgatgacag cctcttcttc agtaatttct cacttcttgg tactcctgtc  
1320

ctgaaagata ttaatttcaa gatagaaaga ggacagttgt tggcggttgc tggatccact  
1380

ggagcaggca agacgagctt gctcatgatg atcatgggcg agttagaacc aagtgaaggc  
1440

aagatcaaac attccggccg catcagcttt tgcagccaat tcagttggat catgcccgtt  
1500

accatcaagg agaacataat cttcggcgtc agttacgacg agtaccgcta tcgctcggtg  
1560

attaaggcct gtcagttgga ggag  
1584

&lt;210&gt; 102

&lt;211&gt; 323

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; trans-splicing domain of CFTR PTM

&lt;400&gt; 102

gtaagatatc accgatatgt gtctaacctg attcgggcct tcgatacgct aagatccacc  
60

ggtcaaaaag ttttcacata atttcttacc tcttcttgaa ttcatgcttt gatgacgctt  
120

ctgtatctat attcatcatt ggaaacacca atgatatttt ctttaattgt gcttggcata  
180

atcctggaaa actgataaca caatgaaatt cttccactgt gcttaatttt accctctgaa  
240

ttctccattt ctcccataat catcattaca actgaactct ggaaataaaa cccatcatta  
300

ttaactcatt atcaaatacac gct

323

<210> 103  
<211> 165  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PTM binding domain

<400> 103  
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cctaagcaga agtgtatatt cttatttgta aagattctat taactcattt gattcaaaat  
120  
atttaaaata cttcctgttt cacctactct gctatgcacc cgcg  
165

<210> 104  
<211> 225  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> trans-splicing domain of CFTR PTM

<400> 104  
aataatgacg aagccgcccc tcacgctcag gattcacttg cctccaatt atcatcctaa  
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gcagaagtgt atattcttat ttgtaaagat tctattaact catttgattc aaaatattta  
120  
aaatacttcc tgtttcacct actctgctat gcacccgcgg aacattatta taacgttgct  
180  
cgaatactaa ctggtacctc ttcttttttt tttgatatcc tgcag  
225

<210> 105  
<211> 3069  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> CFTR PTM sequence

<400> 105  
acttcacttc taatgatgat tatgggagaa ctggagcctt cagagggtaa aattaagcac  
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agtggaagaa tttcattctg ttctcagttt tcttgatta tgcctggcac cattaaagaa

120  
aatatcatct ttggtgtttc ctatgatgaa tatagataca gaagcgtcat caaagcatgc  
180  
caactagaag aggacatctc caagtttgca gagaaagaca atatagttct tggagaaggt  
240  
ggaatcacac tgagtggagg tcaacgagca agaatttctt tagcaagagc agtatacaaa  
300  
gatgctgatt tgtatttatt agactctcct tttggatacc tagatgtttt aacagaaaaa  
360  
gaaatatttg aaagctgtgt ctgtaaactg atggctaaca aaactaggat tttggtcact  
420  
tctaaaatgg aacattttaa gaaagctgac aaaatattaa ttttgcataa aggtagcagc  
480  
tatttttatg ggacattttc agaactccaa aatctacagc cagactttag ctcaaaactc  
540  
atgggatgtg attctttcga ccaatttagt gcagaaagaa gaaattcaat cctaactgag  
600  
accttacacc gtttctcatt agaaggagat gctcctgtct cctggacaga aacaaaaaaaa  
660  
caatctttta aacagactgg agagtttggg gaaaaaagga agaattctat tctcaatcca  
720  
atcaactcta tacgaaaatt ttccattgtg caaaagactc ccttacaat gaatggcatc  
780  
gaagaggatt ctgatgagcc tttagagaga aggctgtcct tagtaccaga ttctgagcag  
840  
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900  
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960  
cgaaagacaa cagcatccac acgaaaagtg tcaactggccc ctgaggcaaa cttgactgaa  
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1200  
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1260  
ggaacactc ctcttcaaga caaagggaat agtactcata gtagaaataa cagctatgca  
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aacacgttga aagcaggtgg gattcttaat agattctcca aagatatagc aattttggat

1560

gaccttctgc ctcttaccat atttgacttc atccagttgt tattaattgt gattggagct

1620

atagcagttg tcgcagtttt acaaccctac atctttgttg caacagtgcc agtgatagtg

1680

gcttttatta tgttgagagc atatttcctc caaacctcac agcaactcaa acaactggaa

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1800

cttcgtgcct tcggacggca gccttacttt gaaactctgt tccacaaagc tctgaattta

1860

catactgcca actggttctt gtacctgtca aactgogct ggttccaaat gagaatagaa

1920

atgatttttg tcatcttctt cattgctgtt accttcattt ccattttaac aacaggagaa

1980

ggagaaggaa gagttggtat taccctgact ttagccatga atatcatgag tacattgcag

2040

tgggctgtaa actccagcat agatgtggat agcttgatgc gatctgtgag ccgagtcttt

2100

aagttcattg acatgccaac agaaggtaaa cctaccaagt caaccaaacc atacaagaat

2160

ggccaactct cgaaagttat gattattgag aattcacacg tgaagaaaga tgacatctgg

2220

ccctcagggg gccaaatgac tgtcaaagat ctcacagcaa aatacacaga aggtggaaat

2280

gccatattag agaacatttc cttctcaata agtcctggcc agaggggtggg cctcttggga

2340

agaactggat caggggaagag tactttgtta tcagcttttt tgagactact gaacactgaa

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ggagaaatcc agatcgatgg tgtgtcttgg gattcaataa ctttgcaaca gtggaggaaa

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gcctttggag tgataccaca gaaagtattt attttttctg gaacatttag aaaaaacttg

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2580

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3060

catcattag

3069